

F H W A REGION NO.	STATE	FED. MD PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	MD			

PROJECT DESCRIPTION

I. GENERAL

THIS PROJECT IS LOCATED AT THE INTERSECTION OF MD 22 AND MD 155 IN HARFORD COUNTY, MARYLAND AND INVOLVES THE CONSTRUCTION OF A NEW TRAFFIC SIGNAL THAT IS EFFECTED BY THESE IMPROVEMENTS. MD 22 IS ASSUMED TO RUN IN AN EAST/WEST DIRECTION.

II. INTERSECTION OPERATION

THE PROPOSED TRAFFIC SIGNAL WILL OPERATE IN A NEMA SIX (6) PHASE, FULLY TRAFFIC ACTUATED MODE. THE MD 22 APPROACHES WILL OPERATE CONCURRENTLY WITH AN EXCLUSIVE/PERMISSIVE LEFT TURN PHASE FOR EASTBOUND TRAFFIC. THE MD 155 APPROACH WILL OPERATE SEPERATE.

A NEW EIGHT PHASE FULLY TRAFFIC ACTUATED CONTROLLER WITH TWO (2) FOUR CHANNEL RACK MOUNTED LOOP DETECTOR AMPLIFIERS, TELEMETRY MODULE, AND INTERSECTION MONITOR WITH BATTERY BACK UP HOUSED IN A NEMA SIZE SIX (6) BASE MOUNTED CABINET.

III. SPECIAL NOTES

- THE SIGNAL SHOP WILL BE NOTIFIED TO PERFORM INTERNAL WIRING OF THE CABINET AT MD 22 AND MD 155. ALL CABLE SHALL BE IDENTIFIED AND BROUGHT INTO THE CONTROLLER BY THE CONTRACTOR. THE CONTRACTOR SHALL NOTIFY MR. EDWARD RODENHIZER, SHA SIGNAL SHOP AT (410) 787-7650 SEVENTY-TWO (72) HOURS IN ADVANCE OF THIS WORK.
- MOT PLATES FOR THIS PROJECT WILL BE AS FOLLOWS: 104.00 TO 104.00-12, 104.02-01, 104.03-01

EQUIPMENT LIST

A. EQUIPMENT TO BE SUPPLIED BY SHA AND INSTALLED BY THE CONTRACTOR

ITEM NO.	QUANTITY	DESCRIPTION
900001	1 EA	FURNISH NEMA 6 BASE MOUNTED CABINET & CONTROLLER
900001	5 EA	12'1-WAY, 3-SECTION (R,Y,G) TRAFFIC SIGNAL HEAD - MAST ARM MOUNT
900001	2 EA	12'1-WAY, 5-SECTION (R,Y, G, YA,GA) TRAFFIC SIGNAL HEAD - MAST ARM MOUNT
900001	1 EA	12'8'1-WAY, 5-SECTION (R, Y, G, YA, GA) TRAFFIC SIGNAL HEAD - MAST ARM MOUNT
900001	72 SF	SHEET ALUMINUM SIGNS
900001	2 EA	FOUR CHANNEL RACK MOUNTED LOOP DETECTOR AMPLIFIER

- 1 EA. M95-1 SIGN (24' X 78") INTERSECTION DUAL DIRECTIONAL *EAST MD 22 WEST* MAST ARM MOUNT
- 1 EA. D3-2 SIGN (18' X 96") *LEVEL RD* - MAST ARM MOUNT
- 1 EA. R10-12 SIGN (30 IN. X 36 IN.) *LEFT TURN YIELD ON GREEN* - MAST ARM MOUNT
- 1 EA. SHIELD ASSEMBLY *NORTH, MD 155, LEFT* ARROW (30 IN. X 51 IN.) - GROUND MOUNT
- 1 EA. SHIELD ASSEMBLY *NORTH, MD 155, RIGHT* ARROW (30 IN. X 51 IN.) - GROUND MOUNT
- 2 EA. W3-3 SIGN (36 IN. X 36 IN.) *NEW SIGNAL AHEAD* - GROUND MOUNT

B. EQUIPMENT TO BE SUPPLIED AND INSTALLED BY THE CONTRACTOR

ITEM NO.	QUANTITY	DESCRIPTION
1001	1 L.S.	MAINTENANCE OF TRAFFIC
2001	3 CY.	TEST PIT
5004	75 LF	FURNISH AND INSTALL 24" WHITE PERMANENT PREFORMED PAVEMENT MARKING TAPE (STOP BAR)
8001	11.0 CY	FURNISH AND INSTALL CONCRETE SIGNAL FOUNDATION
8026	100 LF	FURNISH AND INSTALL 2 IN. SCHEDULE 80 PVC CONDUIT - BORED
8024	200 LF	FURNISH AND INSTALL 2 IN. SCHEDULE 80 PVC CONDUIT - TRENCHED
8027	145 LF	FURNISH AND INSTALL 3 IN. SCHEDULE 80 PVC CONDUIT - TRENCHED
8029	160 LF	FURNISH AND INSTALL 3 IN. SCHEDULE 80 PVC CONDUIT - BORED
8030	25 LF	FURNISH AND INSTALL 4 IN. SCHEDULE 80 PVC CONDUIT - TRENCHED
8023	35 LF	FURNISH AND INSTALL 1 IN. LIQUID TIGHT FLEXIBLE NON-METALLIC CONDUIT SLEEVE
8033	4 EA	FURNISH AND INSTALL HANDHOLE
8054	32 SF	INSTALL OVERHEAD SIGN
8056	1 EA	FURNISH AND INSTALL 250 WATT HIGH PRESSURE SODIUM LAMP AND LUMINAIRE
8049	70 LF	FURNISH AND INSTALL NO. 6 STRANDED BARE COPPER GROUND WIRE (NO. 6 AWG)
8070	1 EA	FURNISH AND INSTALL CONTROL AND DISTRIBUTION EQUIPMENT (120/240V, 1 PH, 3 W)
8011	8 EA	INSTALL SIGNAL HEAD ANY TYPE- MAST ARM MOUNT
8046	210 LF	FURNISH AND INSTALL ELECTRICAL CABLE 2 CONDUCTOR NO.12
8041	400 LF	FURNISH AND INSTALL ELECTRICAL CABLE 2-CONDUCTOR ALUMINUM SHIELDED
8044	200 LF	FURNISH AND INSTALL ELECTRICAL CABLE 5-CONDUCTOR NO.14 AWG
8045	650 LF	FURNISH AND INSTALL ELECTRICAL CABLE 7-CONDUCTOR NO.14 AWG
8040	1000 LF	FURNISH AND INSTALL LOOP WIRE IN FLEXIBLE TUBING
8039	200 LF	FURNISH AND INSTALL 12-PAIR JELLY FILLED NO.19 AWG INTERCONNECT CABLE
8022	350 LF	FURNISH AND INSTALL SAW CUT FOR SIGNAL (LOOP DETECTOR)
8057	1 EA	FURNISH AND INSTALL 10 FT. LIGHTING ARM ON SIGNAL STRUCTURE
8082	1 EA	FURNISH AND INSTALL MAST ARM POLE 12 IN. X 27 FT. AND 50 MAST ARM
8085	1 EA	FURNISH AND INSTALL MAST ARM POLE 12 IN. X 27 FT. AND TWIN 50 FT / 60 FT MAST ARMS
8016	3 EA	FURNISH AND INSTALL MICROLOOP PROBE SET 500 FT. LEAD IN.
8020	1 EA	INSTALL NEMA 6 BASE MOUNTED CABINET
8006	3 EA	CUT CLEAN, GALVANIZE AND CAP TRAFFIC SIGNAL STRUCTURE
8053	40 SF	INSTALL SIGN GROUND MOUNT
8051	60 LF	FURNISH AND INSTALL WOOD SIGN SUPPORTS 4"x4"
8052	40 LF	FURNISH AND INSTALL WOOD SIGN SUPPORTS 4"x6"
8050	65 LF	FURNISH AND INSTALL ELECTRICAL CABLE 1-CONDUCTOR NO. 4 AWG

THE FOLLOWING CONTACT PERSONS FOR DISTRICT # 4 ARE AS FOLLOWS:

Mr. David L. Malkowski
District Engineer
Phone: (410) 321-3461

Mr. Randall Scott
Assistant District Engineer-Traffic
Phone: (410) 321-3514

Mr. David Ramsey
Assistant District Engineer-Maintenance
Phone: (410) 363-1315

Mr. Joe McMahon
Assistant District Engineer-Utility
Phone: (410) 321-3456

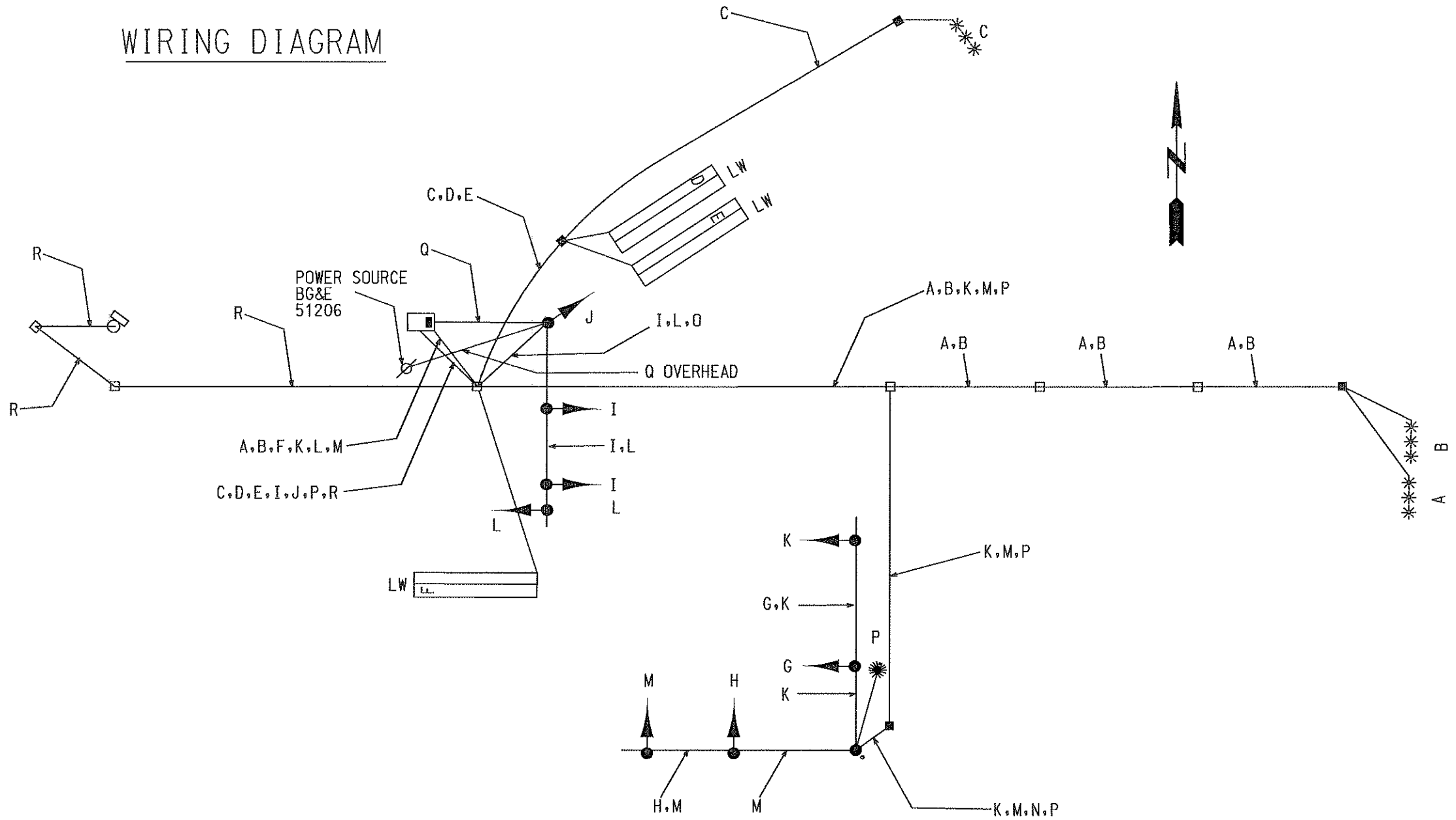
Mr. Richard Daff
Chief Traffic Operations Division
Phone: (410) 787-7360

The Power Company Representative is:

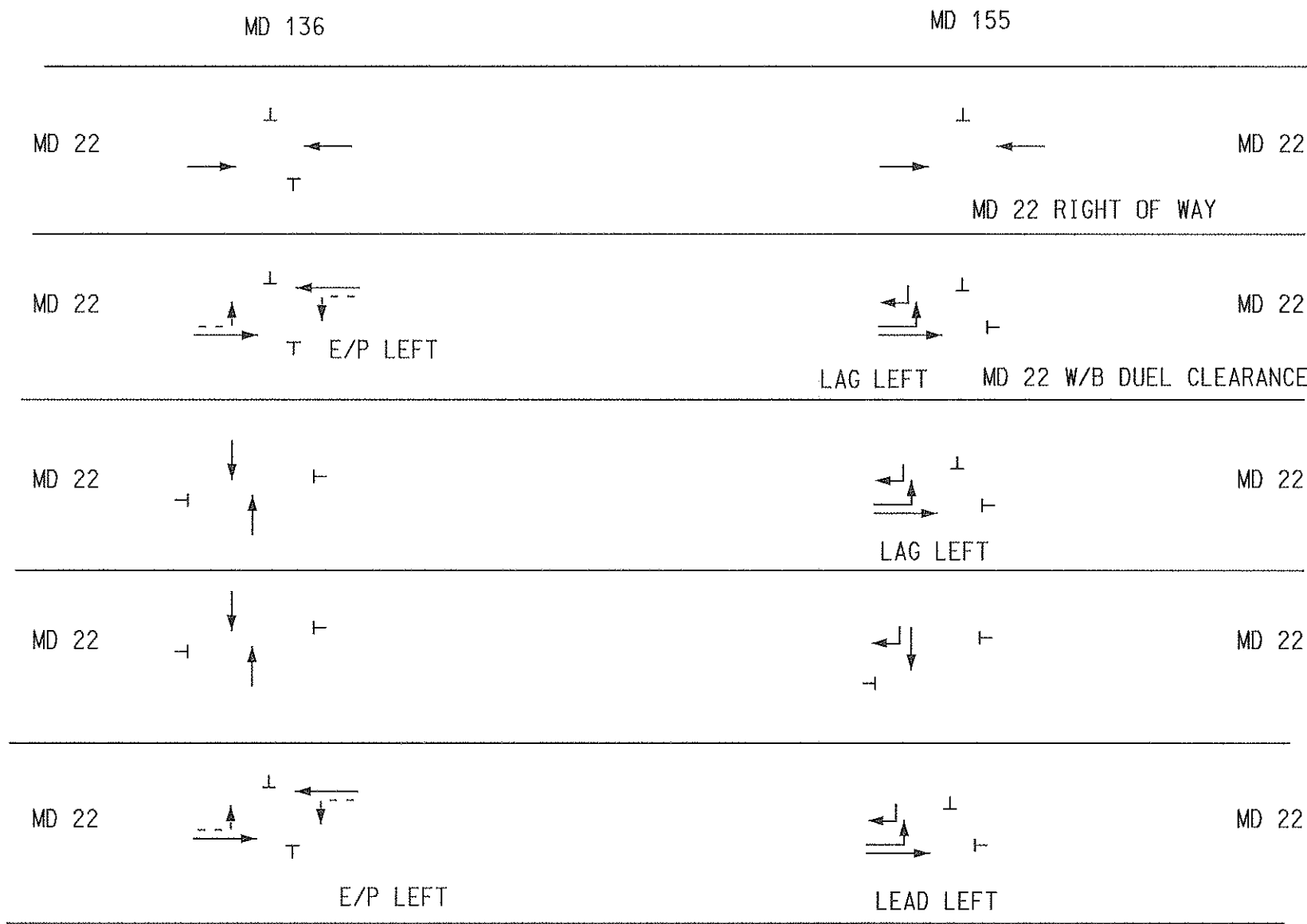
BALTIMORE GAS AND ELECTRIC COMPANY
JOE WEBER

7317 PARKWAY DRIVE
HANOVER MD 21076
(410) 859-9026

WIRING DIAGRAM



A HARD WIRE RELAY PACKAGE WILL BE INSTALLED TO ALLOW FOR THE FOLLOWING OPERATION BETWEEN THE TWO INTERSECTIONS OF MD 22 / MD 136 AND MD 22 / MD 155.



WIRING KEY

- A,B,C MICRO PROBE CABLE
- D,E,F 2 CONDUCTOR ALUMINUM SHIELD
- G,H,I,J 5 CONDUCTOR ELECTRICAL CABLE (NO. 14 AWG)
- K,L,M 7 CONDUCTOR ELECTRICAL CABLE (NO. 14 AWG)
- N,O STRANDED BARE COPPER WIRE (NO. 6 AWG)
- P 2 CONDUCTOR ELECTRICAL CABLE (TYPE T.C.)
- Q 1 CONDUCTOR ELECTRICAL CABLE NO. 4 AWG)
- R 12 PAIR JELLY-FILLED (NO. 19 AWG)

PHASE CHART

	1	2	3	4	5	6	7	8
PHASE 1 & 6	G	G	G	R	R	R	R	R
PHASE 1 & 6 CHANGE	G	G	G	R	R	R	R	R
PHASE 2 & 6	G	G	G	G	G	R	R	R
PHASE 2 & 6 CHANGE	Y	Y	Y	Y	Y	R	R	R
PHASE 3	G	G	G	R	R	R	R	R
PHASE 3 CHANGE	G	G	Y	R	R	R	R	R
PHASE 4	R	R	R	R	R	G	G	G
PHASE 4 CHANGE	R	R	R	R	R	Y	Y	Y
FLASHING OPERATION	FL/Y	FL/Y	FL/Y	FL/Y	FL/Y	FL/R	FL/R	FL/R

CONSTRUCTION DETAILS

- INSTALL NEMA SIX PHASE BASE MOUNTED CONTROLLER
- INSTALL 12 INCH X 27 FOOT STEEL STRAIN POLE WITH TWIN 38 FOOT MAST ARM, 60 FOOT MAST ARM, AND 10 FOOT LIGHTING ARM (NOTE: ONE 3 INCH SCHEDULE 80, 90 DEGREE PVC CONDUIT BEND, 4-2 1/4" X 96" ANCHOR BOLTS IN BASE)
- INSTALL 12 INCH X 27 FOOT STEEL STRAIN POLE WITH 50 FOOT MAST ARM (CUT AND CAPPED TO 45 FOOT (NOTE: 1-4 INCH SCHEDULE 80, 90 DEGREE PVC CONDUIT BEND, 4-2 1/4" X 96" ANCHOR BOLTS IN BASE)
- INSTALL 6 FT. X 22 FT. LOOP DETECTOR IN 1/4 IN. FLEXIBLE TUBING (3-6-3 TURNS)
- INSTALL HAND HOLE
- INSTALL 1" LIQUID TIGHT FLEXIBLE NON-METALLIC CONDUIT FOR DETECTOR SLEEVE
- INSTALL 2 IN. SCHEDULE 80 POLYVINYL CHLORIDE CONDUIT- TRENCHED
- INSTALL 2 IN. SCHEDULE 80 POLYVINYL CHLORIDE CONDUIT- BORED
- INSTALL 3 IN. SCHEDULE 80 POLYVINYL CHLORIDE CONDUIT- TRENCHED
- EXISTING HANDHOLE TO REMAIN
- EXISTING CONDUIT TO REMAIN AND BE UTILIZED FOR NEW WIRING
- EXISTING CONDUIT TO BE ABANDONED
- INSTALL 24" WHITE PERMANENT PREFORMED PAVEMENT MARKING TAPE (STOP BAR)
- INSTALL 3 IN. SCHEDULE 80 POLYVINYL CHLORIDE CONDUIT- BORED
- INSTALL 4 IN. SCHEDULE 80 POLYVINYL CHLORIDE CONDUIT- TRENCHED
- INSTALL MICRO LOOP PROBES 500 FT LEAD-IN
- REMOVE EXISTING GROUND MOUNTED SIGN
- INSTALL PROPOSED GROUND MOUNTED SIGN
- INSTALL 6' x 30' LOOP DETECTOR IN 1/4 IN. FLEXABLE TUBING (3-6-3 TURNS)

REVISIONS	APPROVALS	MARYLAND DOT - STATE HIGHWAY ADMINISTRATION Office of Traffic & Safety TRAFFIC ENGINEERING DESIGN DIVISION	
		MD 22 AND MD 155	
		LOG MILE: 12002205.54	
		DRAWN BY: C. MUNZ	F.A.P. NO.
		CHK. BY: 1" = 20'	S.H.A. NO. AW 219456/ BSG
		DATE: 9/98	COUNTY: HARFORD
		G.I. NO. 3835	
		SHEET NO. 2 OF 2	